REMARKS

As a preliminary matter, the Applicant notes that this application claims priority, pursuant to 35 U.S.C. §119(e), of U.S. Provisional Application No. 60/219,974, filed July 21, 2000. The Applicant notes, however, that the Examiner did not check box 14 on PTO form 326, acknowledging the claim for domestic priority. The Applicant respectfully requests that the Examiner acknowledge the claim at the next opportunity to do so.

Rejections under 35 U.S.C. § 102

Claims 1-3 stand rejected under 35 U.S.C. §102 as being anticipated by U.S. Patent No. 5,957,223 (Doster). This rejection is respectfully traversed.

Claim 1 recites a method for drilling a wellbore comprising operating a turbine-type mud motor coupled to a bi-center drill bit, and applying a selected axial force to the bit so that it drills in a directionally stable manner. This method advantageously provides the ability to maintain a desired rate of penetration (ROP) while lessening the required weight on bit (WOB), thereby permitting the use of bi-center bits in applications for which they were previously unsuited due to their tendency to deviate from a desired trajectory with higher WOB.

Bi-center bits are known in the art to drill a wellbore having a drill diameter that is greater than a pass-through diameter of the bit. Such bits are used to advantageously provide a wider borehole, particularly in formations that are prone to expansion, so that the formation surrounding the wellbore will not interfere with rotation of the drill string or extraction of the drill bit from the wellbore. Unfortunately, bi-center bits will typically exhibit a degree of directional instability. This instability is traditionally tolerated to some degree in normal drilling because of the advantages of having a wider borehole.

However, in directional drilling, where maintaining a desired trajectory is critical, bi-center bits have been disfavored because of this directional instability. Embodiments of the present invention advantageously address this inherent directional instability of bi-center bits by providing an increased RPM to the bit while lowering the WOB so that directional stability is increased, particularly in directional drilling applications.

As required by the claims, and as noted in the specification, the present invention is able to provide improved directional stability by appropriately balancing the axial force applied on the bit (WOB), with the rotary speed of the bit (RPM). The present inventors have discovered that by using a turbine-type motor, significantly higher RPM's may be used, in conjunction with relatively low axial force, to provide commercially viable rates of penetration.

In contrast, Doster discloses a bi-center bit designed from a cutter placement and orientation standpoint to place lateral force vectors F_1 and F_2 in substantial mutual directional alignment, in order to force a side of the bit radially opposite the vectors against the borehole wall. In order to achieve that objective, Doster discloses that cutter placement and orientation are manipulated to cause the direction of force vector F_1 to generally coincide with the direction of dominant force vector F_2 generated by cutters of the eccentrically-placed blades of the reamer bit section. Moreover, Doster discloses that the pilot bit section of the bi-center bit includes an extended gage section thereon to lower the force per unit area imposed on the pilot gage pads from the substantially radially aligned resultant lateral force vectors F_1 and F_2, and particularly the overwhelmingly dominant vector F_2 of the reamer bit section. *See* Summary of the Invention.

First, Doster fails to disclose the step of "selecting an axial force to maintain a selected drilling path," as recited in claim 1. Doster is concerned not with the application of

appropriate *axial* forces, but rather is concerned with *lateral* force distribution. In the present invention, however, the turbine-type motor is operated at a selected speed, and the appropriate axial force is applied in order to ensure that the economically viable rates of penetration occur, while the bit drills in a directionally stable manner. Thus, the turbine speed and the axial force are intertwined in the present invention, in order to advantageously provide for directionally stable drilling.

In contrast, Doster fails to disclose either part of this claimed interplay, and simply discloses an insert orientation selected to optimize a distribution of lateral forces. As such, Doster cannot anticipate claim 1. Claims 2-3, which depend from claim 1, are patentable for at least the same reasons.

In addition, Doster is simply silent with respect to using a *turbine-type* motor as required by the present invention. As noted above, the entire disclosure of Doster relates to orientation of lateral forces in an advantageous manner, while simultaneously providing an increased gage surface, so that the increased lateral forces on the bit do not cause the gage inserts to fail. *See* col. 6, ll. 15-20. As noted in the present specification, turbine-type motors operate at higher RPM's than typical prior art motors, causing the bit to turn faster. As will be appreciated by those having ordinary skill in the art, increasing bit rotation necessarily increases the amount of centrifugal force generated by the bit, leading to *increased* lateral forces acting on the inserts.

However, Doster specifically discloses that care must be used to ensure that the forces on the gage surface must be controlled, because of the particular insert orientation. As such, it is believed by the Applicant that Doster could not use a turbine-type motor without causing excessive insert failure, caused by the combination of the increased lateral forces (due to the

orientation and position of the inserts) and the increased centrifugal force associated with a turbine-type motor.

Because Doster fails to disclose the use of a turbine-type motor, and because the use of a turbine-type motor runs contrary to the disclosure of Doster (and may render Doster inoperative), claim 1 is neither anticipated nor rendered obvious by Doster. Accordingly, withdrawal of the §102 rejection of claim 1 is respectfully requested. Claims 2-3, which depend therefrom, are patentable for at least the same reason.

Conclusion

Claims 1-3 have been shown to be allowable over the prior art. Applicants believe that this paper is responsive to each and every ground of rejection cited by the Examiner in the Office Action dated April 1, 2003, and respectfully request favorable action in the form of a Notice of Allowance. Please apply any charges not covered, or any credits, to Deposit Account 50-0591 (Reference Number 05516.079002).

Respectfully submitted,

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